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ABSTRACT

This paper describes and reflects on the evolution of the South Seas Project, a collaborative research venture between the National Library of Australia and the Center for Cross-Cultural Research that involves the production of World Wide Web-based hypermedia resources on the history of European exploration and cross-cultural encounter in the Pacific, between approximately 1700 and 1840. Highlights include: background on how the project came about; funding; ensuring that the digital resources created could be managed within the Library's projected framework for collecting, managing, and delivering information resources in digital forms; the importance of creating resources in forms that can be integrated with other Web-based research; comparison with print materials; accuracy of quotations and references; problems with digital resources, including fragility and the difficulty of confirming accuracy and authenticity; other digital library projects focused on the production of editions of historical texts; and development of a content management and publications system that will ensure the project's resources are produced in conformity to those modes of encoding and describing historical documents that are gaining greatest currency with major research libraries and cultural institutions. (Contains 19 references.) (MES)

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Proceedings

A New Foreign Country: The Challenges and Risks of Making History in Digital Media for Historians and Librarians

Dr Paul Turnbull and Chris Blackall

In this paper, we describe and reflect upon the evolution of the South Seas Project. This project is a collaborative research venture between the National Library of Australia and the Centre for Cross-Cultural Research which has been underway since mid-1998. Its first major phase is scheduled for completion in late 2002

The project involves the production of web-based hypermedia resources on the history of European exploration and cross-cultural encounter in the Pacific, between approximately 1700 and 1840. As we in Australia hardly need reminding, it was over the course of this century and half that European and Oceanic cultures become entangled and profoundly changed forever.

However, our concern in this paper is less with the historical salience of the rich array of information resources the South Seas Project will create, than with its exploratory character in another importance sense. The project is greatly focused on devising practical solutions to the problems confronting Australian historical researchers who want to make history in networked digital media, and want to do so in ways that ensure migrating to virtual modes of communication does not result in them having to sacrifice the critical aims and practices which have underpinned the making of history in the realm of print. We want to find out , conceptually and technically speaking, what is needed for the making of digital history to become a research activity that is professionally recognized and supported.

It seems to begin this survey of the challenges and risks awaiting historians who journey into the virtual landscape by saying how the South Seas Project came about. The project began soon after Paul Turnbull was invited to take up a Research Fellowship at the Centre for Cross-Cultural Research, [1] located at the Australian National University, in 1998. A historian well known for his research on Enlightenment historiography, early anthropology and colonial racial thought, Turnbull, had for several years found himself increasing exploring the potential application of networked communication technologies in history publishing and teaching. In 1978 he had written a fourth years history honours thesis using a mainframe computer, and in 1985 completed his PhD using mainframe and micro-computer systems. By the early 1990s, the establishment of AARNet, and the resulting uptake of communication software such as PINE electronic mail and GOPHER, had convinced Turnbull that networked based electronic communication would rapidly be integrated in patterns of scholarly communication. By the time he arrived at the Centre for Cross-Cultural Research, he was well experienced in the creation and evaluation of web-based teaching and learning resources for the history of the social sciences. He had also founded an electronic journal, [2] and become involved in the development of H-Net, an international initiative to create communication networks and information resources for scholarly communities in the Humanities and Social Sciences. [3]

By 1997, Turnbull had began to consider how networked communications might be used as media for research, not simply the delivery of research outcomes. While skeptical of claims by literary theorists as to the freedom of interpretation that hypermedia bestowed on readers, [4] he was nonetheless of the view that in many instances it could allow readers greater freedom to draw or test connections between various kinds of historical evidence than print-based scholarship. Indeed, on the strength of successfully using the web in history teaching, it seemed feasible that researchers and their peers could interact so as collectively to gain clearer insight into such matters as the complexity of interrelationships operating between economic and cultural forces of wide influence, and factors which were peculiar to specific places and times. At the same time, having

worked closely with Indigenous communities and organisations in North Queensland for some years on documenting the history of the theft of cultural property, Turnbull had become conscious of the degree to which the web might also be employed as medium to challenge the primacy of the written text in the history of cross-cultural encounter in Australia and the Pacific. [5]

By virtue of his interest in early anthropology, Turnbull was struck with the idea of making hypermedia editions of the journals relating to James Cook's first Pacific Voyage (1768-71), arguably one of the most historically salient events in the modern history of Oceania and Australia. The journals could be presented via the web in ways that would allow researchers to explore how, in both obvious and many subtle ways, these journals differed in explaining the myriad new things that Cook and his party encountered, especially in the Society islands, New Zealand and Australia. Researchers could also be provided with a range of other interrelated historical documents, images and new scholarly commentaries. In respect of the commentaries, they could be designed so as to explain the disparities in testimony to be found in the accounts of Cook's first voyage, but equally they could substantially challenge researchers to contribute to the project by appraising these resources so as to create new relationships and commentaries on their significance. The project would have the potential to become a living web of scholarship.

Importantly, the project offered unparalleled scope for moving beyond presentation and commentary upon conventional European archival sources, to appraise visual and sonic media illuminating how the cross-cultural encounters of the Cook voyage have figured in the historical imagination of the Indigenous societies of Oceania and Australia since the 1760s. [6]

By early 1999 the project was well underway, but its aims had undergone further evolution. It had become more concerned with what was required to create and manage such a rich array of diverse information resources.

From the outset, the project has been a collaborative venture between the Centre for Cross-Cultural Research and the National Library of Australia. The Library readily endorsed the intellectual goals of the Project, and agreed to assume responsibility for the delivery and archiving the project's outcomes. In 1998 it supported an application for funding through the Australian Research Council's Strategic Partnership with Industry Scheme (SPIRT). While that bid was unsuccessful, the Library generously aided the development of the project by contributing to the costs of creating digital copies of core documents and images, notably the creation of a new transcript of the Cook's own copy of the journal of his first voyage, which is preserved by the Library, and the careful unbinding and scanning of a first edition of account of the voyage published by John Hawkesworth in 1773. [7]

However, discussions with staff of the National Library on preparing a revised SPIRT application over the summer of 1998-9 made clear that the success of the project hinged on focusing in greater depth on the challenges associated with ensuring that the digital resources it would created, and presumably those which it would in turn stimulate others to produce, could be managed within the Library's projected framework for collecting, managing and delivering information resources in digital forms.

A further significant development was Chris Blackall joining the project in mid-1998. A graduate in communication studies and art history, Blackall had gained extensive experience in the production and management of web-based educational resources with Education Network Australia (EdNA) and the University of Melbourne. In the course of postgraduate studies undertaken in art history and curatorship, Blackall had become interested in the project, and began investigating a number of issues closely related to its goals, notably the visual representation of geographical and historical data. During a twelve-month internship within the National Library as part of his curatorial studies, Blackall undertook extensive research on the growth of cultural information in digital forms for the exhibition and outreach programs of cultural institutions. Like Turnbull, working with National Library staff alerted Blackall to the need of digital history projects to exploit the various lines of research and development being undertaken within the library world in anticipation of the growth of historical information resources.

In short, by early 1999, Turnbull and Blackall were convinced that resources created by the project would need to conform, as best they could anticipate, to the ways of encoding and describing digital information resources which were most likely to be widely adopted within the library world. Equally, they were conscious of the dangers of failing to ensure the project's resources were interoperable in key respects with these emerging standards - even though this meant striving to comprehend a wealth of research and development within the fields of library and information science which was not always readily understandable, even to two reasonably computer-literate scholars in the humanities. It seemed clear that if they were to continue journeying into the virtual without trying to comprehend and implement the work of library professionals, they would be creating more problems than they solved, both for digital librarians and the research community they were aiming to benefit. Without incorporating the means for libraries to manage what they were creating, they were - to paraphrase one leading British digital library specialist - creating web resources with all the durability and scalability of a tower of playing cards.

Realizing this, we undertook an extensive review of the project, in which we began by revisiting our basic assumptions about why we wanted to use networked hypermedia. Clearly, our main aim was to create information: to produce content, to employ the parlance of the web, which was accurate and useful to other scholars. Further, it had to be created in forms that could easily be integrated with the resources we placed on-line, or incorporated into related or new web-based research ventures. Otherwise there was little chance of mirroring the discursive economy within which historical knowledge is conventionally produced, disseminated, absorbed, and critically refashioned.

To illustrate what we mean by this, let us return momentarily to the more familiar world of print. Historians traditionally write books. They also produce articles for specialized academic journals. Many also write for journals of opinion and newspapers. Irrespective of the genre, the value of their writing as historical knowledge as decided by peer review. Books and specialist articles in particular are published by academic or commercial publishers only after anonymous review by two or more scholars with expertise in the same or cognate fields.

On publication, a book or article enters the realm of historical discourse, where it is read and digested by other researchers. They may choose to review the work for a journal, incorporate its findings within their own research, or critically appraise its worth within their own writings. And so historical argument proceeds.

Now, this is all fairly self evident; but what was of particular interest to us was to focus on what is implicit in this process: what one might call the infrastructural elements by which the network of reception and refashioning of historical knowledge sustained by print-based publication routinely occurs.

Most obviously, absorbing another researcher's work within one's own, whether for the purpose of validation, revision or pointing out inaccuracies or incompleteness, involves the employment of various technical conventions, the most obvious being quotation and referencing the work in question. Writing a history book or journal article moreover rarely involves quotation or referencing the work of one or two scholars. Books dealing with major themes in nineteenth-century Australian history, for example, can make to over five hundred other books and articles - and contain equally as many references to unpublished archival sources.

As many undergraduates in history quickly learn, accuracy in citation is paramount; but in the routine ebb and flow of debate between historians, the accuracy or otherwise of quotations or references are questioned only when by virtue of close acquaintance with a particular book or archival sources a researcher senses that something in wrong. As was well illustrated by Alan Sokal's celebrated hoaxing of the journal Social Text, in 1996, scholarly discourse ordinarily proceeds on trust. [8] We pick up a book, we note that it is published by a reputable publisher, we learn from the title page, acknowledgments or preface that the author is located within a particular intellectual community. In course of reading the work we may note the publication details or location of a source that has been used. Rarely if ever do we take the work to an archive or library and systematically assess the accuracy or otherwise of the references it contains. If we could not trust normative conventions of trust, historical discourse would ground to a halt.

These are admittedly fairly mundane observations. However, looking at the conventions within print that sustain historical practice in this way serves to highlight what we see as the central challenges confronting historians who want to use hypermedia as a research medium. In the virtual realm, we may be seeing the appearance 'E books' but as yet we have only the most rudimentary mechanisms to sustain the conditions of trust enabling the repertoire of practices employed in print-based historical scholarship.

Suppose we set out to create a complex work of historical scholarship in hypermedia. Quotation and references to print-based or archival resources pose no problem. But what happens should one seek to create a work which draws substantially or even wholly upon networked digital sources? As things stand, we face a number of problems. With the print-based monograph, we can be assured that the matrix of information in which the book is anchored, and from which it derives much of its significance and meaning, will remain stable for the foreseeable future. It is likely to be more secure by virtue of bibliographical software and on-line resource finding aids making it easier for writers of books and paper-based journals to ensure they provide accurate references to print-based materials. But about a referential apparatus sustaining hypermedia-based scholarship that rivals the complexity of documentation with which historical books are firmly interwoven? Currently, any such apparatus would be in danger of breakage and fracture as web-sites are re-designed, or moved to new domains - the phenomenon vividly described by some commentators as "link rot". Indeed, in the humanities in the Australian context, there is the further danger of the apparatus progressively eroding as sites the costs of maintenance stretch beyond cash strapped university departments. Compounding the problem is the growing use within educational institutions of dynamic databases, from which generate web-pages are generated on the basis of queries by users. In terms of enterprise-wide information management it may make sense to have information stored by this means, but serving research outcomes dynamically makes it difficult, if not impossible, for creators of related hypermedia resources to link to the information in question.

The current fragility of on-line resources is only one dimension to the problem. There is the question of how, in the first instance, one finds and can be assured of the accuracy or authenticity of digital historical documents and research findings. In the case of books and learned articles, we consult finding aids and locate relevant items by authors, titles or by searching on subject headings or keywords. The speed and accuracy of the task is greatly assisted by libraries and publishers agreeing to use controlled vocabularies to describe the information we seek. Once the researcher locates the item, it only takes a quick glance at the title or contents page of a work to confirm its authenticity, and the real business of appraising its content. By way of contrast, locating historical information in digital forms remains a time-consuming and frustrating business should one venture into the digital landscape beyond the on-line public access catalogues of major research libraries. Then, much of what may one currently dredge up by search engines gives little if any information as to its provenance.

How then could we best tackle these problems within the time and resource constraints of the South Seas Project? By this stage it seemed to us that the way forward lay in strengthening our interaction with librarians and information scientists. Indeed, in the library community in Australia and its overseas counterparts' use of the internet we found a practical example of how complex research could be done virtually. Not only were common protocols for encoding and describing information being developed virtually, but in many instances this research was being applied to enhance the efficiency and quality of research communication, but also to ensure the long-term usability of the resulting information.

By early 1999, we had also discovered and appraised a number of Australian and overseas digital library projects focused on the production of editions of historical texts. Among the most influential in shaping our thinking were the SETIS Project being undertaken at the University of Sydney, [9] and the work of researchers associated with the Library of the University of Virginia. [10] These projects confirmed to us that the best content management and publication system for the project would be one in which our editions of the Cook journals and associated scholarly texts were structured in conformity to the SGML document type description developed by the text encoding initiative (TEI). The advantages of having information so structured hardly needs to be spelt out to this audience.

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Nor, for that matter, should it come as a surprise to this audience that we decided to ensure, through ongoing consultation with the National Library, that South Seas Project system would be designed so that what was produced conformed as far possible to agreed schema for metadata and the permanent naming and identification of information resources in digital forms.

While by mid-1999 we had a confident sense of the development path we would take, we had also become aware of journeying some considerable conceptual distance from the historical research community, as is perhaps well illustrated by two anecdotes. The first concerns a historian, who had recently contributed to a collection of essay published electronically by a university department. Accordingly to the computer technician who told us the story, he had been called into the office of the historian, who was seated before his computer in a foul mood. The publication to which he had contributed had been on-line for some weeks; but why, he testily demanded, had his article not appeared at the very top of his screen after searching his subject of expertise through a leading commercial search engine. Why, in fact, was his article not even listed. Our second anecdote is, from our perspective, slightly more disturbing. Addressing a group of postgraduate students, the historian explain that the best thing about the computer was that it has allowed for a new measure of aesthetic control over the writing of history, by allowing researchers to determine exactly what their writing would look like when it appeared on the printed page.

We tell these anecdotes as in their respective ways they point to the level of unfamiliarity with the conceptual and technical issues associated with electronic publication current existing within the historical profession. It could be objected that it is not the business of historians to concern themselves with the mechanics of publication. Their proper concern is with reconstructing the past. Yet, while this may once have been so, it is no longer the case. Historians cannot ignore the processes by which their research comes before its audience. As few need reminding, the economics of publication has become such that much of the burden of preparing a book or article for publication now falls upon the researcher. In this respect, the second of our anecdotes reflects the changing fortunes of historical publication, albeit in a way that a virtue is made out of what, for most historians, has become a necessity. In the case of journal articles, the economics of print-based publication is now so dire that many paper-based Australian journals in the humanities have no option but to go electronic. [12] Moreover, the increasing work-loads amongst humanities researchers and state of departmental budgets are such that much of the burden of preparing articles for electronic publication will increasingly be done by the authors themselves. And this will require them to think very differently about how they prepare and describe documents destined for the web.

Which leads us to what is most troubling about the observation by the second historian. Using one of a number of sophisticated proprietary word-processing programs, writers can be assured that what they see on the screen is what they will get from even a relatively cheap laser or bubble-jet printer. But this remains the case only as long as they remain in the world of print-based publication, or opt to have their work published electronically in proprietary formats that drastically reduce the usefulness of the information for scholars who choose to undertake electronically the kinds of critical practices they once may have done through the medium of print.

Before going further, we feel it important to stress that we use the word choose decidedly. Too often an easy and misleading dualism has intruded on debates as to whether scholarly communities in the humanities should "go digital". [13] We certainly do not believe that communities such as professional historians must forsake print for electronic modes of communication. Nor do we see any value in discussions which compare and contrast electronic communication and print in ways that more or less imply one or the other is superior in stimulating modes of knowing and reflection essential to the human condition. Our premise from the outset of the South Seas Project has been that the evolution of networked digital communication presents challenges that cannot be satisfactorily addressed by presuming the emergence of the virtual realm must necessarily displace, or undermine, established modes of communication. Rather, we believe that current trends in the application of digital technologies, and the history of communication, suggests that scholarly communities will need to identify the strengths and weaknesses of the virtual

environment, and then harness those strengths to disseminate of scholarly knowledge in ways best calculated to ensure its reception. What is occurring is less a revolution than a phase shift with complex origins, that is characterized by the addition of potent new forms of communication to the variously interconnected means by which we create, exchange and digest information. [14] Nothing necessarily will lost, but the relative use and effectiveness of particular modes of communication are changing, and in the process the nature ar...eight of their social currency is likely to be transformed.

In the case of the Australian historical profession, the increasing integration of networked information resources into our patterns of communication does not spell the death of the book. What it does mean - should current trends continue - is that audiences who once may have read history books and articles will become increasingly inclined to satisfy their information needs, and curiosity, through networked resources.

This shift could be one that historians exploit strategically to revive interest in books. Though what seems more probable on the basis of current trends is that historians who seek print-based publication will find themselves writing books that are shorter, engage with topical subjects, and are written in a style likely to appeal to audiences well beyond their circle of peers. It may be that what we will see will be hybrid or flexible publication, in which a study appears in print, but may also exist in a digital form that is longer, addressed more to professional colleagues and for whom it provides extensive quotations, references and possibly even raw data from which the researcher has drawn their conclusions. There will also be historians who opt to focus their energies on publication in the digital environment, and who may - as has already happened in a small number of cases - subsequent refashion their virtual work for print publication.

But regardless of the exact relationships between print and electronic publication that emerge, the ease with which historians can exploit the virtual environment will depend on them become more familiar with the technical foundations for digital landscapes being created by librarians and information scientists. They will need to see that the principal advantage of computerization for the historian is not the ability to put words pages as authors would wish, but the facilitation of processes for creating documents so that they can be seamlessly integrated within digital libraries, easily found and delivered to readers, as a 'print on demand' book, or as an electronic document that has been created so that it can readily be subjected to critical use and appraisal. Once history postgraduate training involved attending seminars on theory and methodology. Now many also attend sessions on writing for more diverse audiences. We would do well to think of a future in which postgraduate training includes understanding how to prepare historical scholarship for the virtual environment.

In our work on the South Project Seas Project, we hope to make a small but significant contribution to bringing about a higher degree of acquaintance of what making history with digital media will involve. This we hope to do primarily by creating a content management and publications system which is relatively easy for historians to use, provided that they have some basic understanding of how web pages are constructed with HTML. At some point in the development path, we will distribute the system to interested researchers, with whom we would then seek to improve its functionality.

Technically speaking, the system will ensure the project's resources are produced in conformity to those modes of encoding and describing historical documents which are clearly gaining greatest currency with major research libraries and cultural institutions. Where possible, this system will automate the process of creating metadata and of course the wealth of hyperlinks any complex web-based resource requires. It must also allow for new resources to the site to be integrated automatically.

In mid-1999, we happened to discuss this strategy with Gavan McCarthy of the University of Melbourne's Australian Science and Technology Heritage Centre. McCarthy suggested that we evaluate two software solutions to the cataloguing needs of archivists and heritage managers that he and Joanne Evans, the Centre's Deputy-Director, had built. These were the On-Line Heritage Resource Manager (OHRM) and a web authoring tool (WARP) designed to automate much of the

tedious process of creating digital surrogates of print-based monographs.

It did not take long to realize that, with some modification, the tools would serve us as a working prototype for the system we wished to develop. We had been inclined to develop a system that would be interoperable with the large object orientated databases which lay at the core of many digital libraries currently under development. But after consultation with programming specialists we were beginning to question whether it was possible to do so within the resources available to the project. Also, testing the ORHM convinced us that there was a lot to be said for building a content management system based on a relational database, given the ease with which relationships could be constructed between portions of text.

The points of synergy between our respective projects are such that in August 1999 we agreed to collaborate through 2001-2 on transforming the OHRM and WARP into an open-source system which could easily be modified to suit the needs of a wide spectrum of historical researchers.

By December of this year we plan to have used the current prototype of the system to place on-line an edition of the texts of Cook's Endeavour journal, the journal kept by Joseph Banks, together with the 1773 synthesis of the two journals produced by John Hawkesworth. This edition will include specimen annotations, notes and scholarly essays. We are hoping that this exercise will allow us to gain practical insight into how the system might then be subjected to further refinement as we move towards adding hypermedia resources incorporating interactive maps and video files. Hopefully this exercise will also provide insight into the challenges of moving from proprietary software (the system is current based on Microsoft's Access 97) to an open source-based system. Even so, our sense is that the prototype could serve our needs in terms of content creation for some time to come, and that migrating content to the new system will be relatively simple. Hence problems in the evolving the final version of the system should not hinder the work associated with producing content.

Despite the clear the clear progress we are making with the South Seas Project, a number of our colleagues in remain skeptical about the potential of digital media for history teaching. Some remain of the view that hypermedia can never replace what they regarded as the more 'complex' or 'deep' modes of historical inquiry undertaken through conventional print-based media. The web can never replace the book. The web might even be destructive of historical sensibilities. [15] We have already stressed that in this project were are not championing hypermedia as an intellectually superior medium for engaging with the past. Nor do we did discount the value of conventional modes of historical practice such as the monograph and the scholarly article. Quite the opposite. We have consistently argued that information in print and manuscript forms will remain central to our efforts to understand the past. [16]

However, were are conscious of the intensively visual nature of the web, and intrigued by how modern western modes of representing the past imbue the written word with virtues which have readily been accorded to other modes of communication in earlier historical times, and other cultures. [17] In the South Seas Project, we are particularly concerned to compare and contrast the meanings voyaging imagery came to acquire in Enlightenment intellectual circles. And in doing so we want especially to illuminate the cultural contingencies which have disposed historians to treat images as inferior in truth content to the written word, unless they have been produced through techniques such as photography which have been seen as constraining their range of meaning to scientifically mirroring reality. Further, we are interested in questioning what the cultural trajectories of voyaging imagery - its production, circulation, reception and often its reproduction in mutated forms - has to say to us about the social nature and historical antecedents of the textual practices and imaging technologies which characterize the virtual environment. [18]

Improving the integrity and archival stability of the resources associated with 'South Seas' will enhance the project's educational value, and not just in relation to my own teaching. The formats in which the resources will be placed opens up the prospect of them being easily integrated into other virtual teaching and learning ventures within Australia, and overseas. Unlike many Australian senior education managers, I remain firmly of the view that our goal in universities is to create information resources of value beyond economic utility. And to do this we need to take advantage

of our traditions of commitment to sharing knowledge, and collaborating to make the most of the limited resources we have.

But as we have argued in this paper, all this presumes first getting right some basic but essential processes for creating and managing historical information in digital forms.

In Australia, these remain difficult times for university-based historians. Conversations at conferences and seminars easily fall into discussions about how best history might survive. Some say we could have done more, sooner, to negotiate the changes to Australian higher education. In a provocative address to the Australian Historical Association at its 1998 conference, for example, Alan Ryan argued that we have proved 'singularly inept in adapting to changed circumstances. [19] Our view is that the accusation is inaccurate and unfair. Yet, we might merit the charge if we do not take advantage - despite all the attendant difficulties - of the possibilities opened up by networked communications.

Notes

1. http://www.anu.edu.au/~culture

2. http://www.jcu.edu.au/aff/history/ Please note the Journal is currently undergoing redesign to render the publication of work more efficient.

3. H-Net has grown into an interdisciplinary organisation of scholars dedicated to developing the enormous educational potential of the Internet and the World Wide Web. The computing heart of H-Net resides at MATRIX: The Center for Humane Arts, Letters, and Social Sciences OnLine, Michigan State University, but H-Net officers, editors and subscribers come from all over the globe. See http://www.h-net.msu.edu/

4. See Delany, Paul, and George P. Landow. 1991. *Hypermedia and literary studies, Technical communications*. Cambridge, Mass.: MIT Press; also Landow, George P. 1994. *Hyper text theory*. Baltimore ; London: Johns Hopkins University Press.

5. Here, Turnbull's think was greatly influenced by the work of Heather Goodall and Karen Flick. See http://www.transforming.cultures.uts.edu.au/Heather/hg-Aboriginal.html

6. See the previous reference.

7. The story of the journal's acquisition by the library is told in the forthcoming centennial history of the National Library of Australia edited by Peter Cochrane.

8. A good place to begin exploring Sokal's hoax and its implications is http://www.physics.nyu.edu/faculty/sokal/index.html#papers

9. SETIS is the Scholarly Electronic Text and Image Service at the University of Sydney Library. Australian texts are encoded according to the Guidelines for Electronic Text Encoding and Interchange (TEI-2) and are converted to HTML as users. See http://setis.library.usyd.edu.au/

10. The Electronic Text Center at the University of Virginia combines an on-line archive of tens of thousands of SGML and XML-encoded electronic texts and images with a library service that offers hardware and software suitable for the creation and analysis of text. http://etext.lib.virginia.edu/

11. However, for those who require further information, see http://etext.lib.virginia.edu/TEI.html

12. The magnitude of the problem can be gauged from publications by the National Scholarly Communications Forum. See http://www.asap.unimelb.edu.au/nscf/nscf.htm

13. This point has been cogently made by Jerome McGann in various essays. See

http://jefferson.village.virginia.edu/~jjm2f/home.html

14. A point I discuss at greater length in my forthcoming paper to the 2000 National Scholarly Communications Forum.

15. Perhaps the most seductive and influential exponent of this style of argument has been

16. Turnbull, Paul. 1997. 'The Electronic Journal of Australian and New Zealand History'. *Australian Historical Association Bulletin* (84):23-30.

17. On this point see especially Thomas, Nicholas. 1997. *In Oceania: visions, artifacts, histories.* Durham, NC: Duke University Press; and Douglas, Bronwen. 1998. *Across the great divide: journeys in history and anthropology, Studies in anthropology and history* ; v. 24. Amsterdam, Netherlands: Harwood Academic Publishers.

18. Here, our thinking has been greatly influenced by Stafford, Barbara Maria. 1996. *Good looking: essays on the virtue of images.* Cambridge, Mass.: MIT Press.

19. Ryan, Alan. 1998. 'Developing a Strategy to 'Save' History'. *Australian Historical Association Bulletin* (87):39-49.

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